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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

In re United States Patent Application of:		**Docket No.:**	**4121-135**
Appellants:	**ARNDT, Michaela, et al.**	**Conf. No.:**	**1053**
Application No.:	**10/049,404**	**Art Unit:**	**1644**
Date Filed:	**August 5, 2002**	**Examiner:**	**Chun Crowder**
Title:	**FV ANTIBODY CONSTRUCT COMPRISING BINDING SITES FOR A CD16 RECEPTOR AND A CD30 SURFACE PROTEIN**	**Customer No.:**	**23448**

FACSIMILE TRANSMISSION CERTIFICATE
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Number of Pages

Kelly K. Reynolds

September 10, 2007
Date

REPLY BRIEF RESPONSIVE TO EXAMINER'S JULY 10, 2007 ANSWER IN APPEAL FOR U.S. PATENT APPLICATION NO. 10/049,404

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Sir:

This Reply Brief is submitted in the appeal proceedings initiated under 35 U.S.C. § 134 in U.S. Patent Application No. 10/049,404. The Reply is in Response to the Examiner's Answer, mailed July 10, 2007.

This Reply Brief is submitted in order to address issues raised in the Examiner's Answer. This Reply Brief supplements Applicants' Appeal Brief filed March 23, 2007, and does not constitute a substitute for Applicants' original Appeal Brief. This Reply Brief complies with the requirements of MPEP § 1208 by including the following items starting on separate pages: (A) Identification Page; (B) Status of claims page(s); (C) Grounds of rejection to be reviewed on appeal page(s); and (D) Argument pages.

The time for responding to the July 10, 2007 Examiner's Answer without extension was set at two months, or September 10, 2007, in accordance with 37 C.F.R. §41.41. This Reply Brief is therefore timely submitted.

No fees are believed due in conjunction with this filing. Should any fees be required, however, authorization is hereby given to charge any additional fee or amount properly payable in connection with the filing of this Reply Brief to Deposit Account No. 08-3284 of Intellectual Property/Technology Law.

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STATUS OF THE CLAIMS

In the Examiner's Answer mailed July 10, 2007, the examiner has maintained that all of the outstanding grounds of rejection remain applicable to the appealed claims. Therefore, the status of the claims has not changed since the filing of the Appeal Brief on March 23, 2007. No new grounds of rejection were raised in the Examiner's Answer of July 10, 2007.

Claims 1-22 are pending in the subject application; no claims have been allowed; claims 1-6, 15, 19, and 22 have been rejected and claims 7-14, 16-18, 20 and 21 are withdrawn.

Specifically, claim 22 is rejected under 35 U.S.C. §112, first and second paragraphs; claims 1-5, and 15 are rejected under 35 U.S.C. §102(b) as being anticipated by Hartmann et al., *Blood*, 89; 6:2042-2047 (1997); and claims 1-6, 15, 19 and 22 are rejected under 35 U.S.C. §103(a) as being obvious over Hartmann et al., *Leukemia and Lymphoma*, 31:385-392 (1998), in view of Hollinger et al., *PNAS*, 93:6444-6448 (1993).

A copy of the appealed claims 1-6, 15, 19 and 22 was attached in the Claims Appendix to the Appeal Brief filed March 23, 2007.

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GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

In the Examiner's Answer mailed July 10, 2007, the examiner has maintained that all of the outstanding grounds of rejection remain applicable to the appealed claims. No new grounds of rejection were raised in the Examiner's Answer of July 10, 2007. Therefore, the grounds of rejection to be reviewed in this appeal have not changed since the filing of the Appeal Brief on March 23, 2007.

The following grounds of rejection are to be reviewed in this appeal:

(a) whether claim 22 is indefinite under the definition of 35 U.S.C. § 112, second paragraph;

(b) whether claim 22 fails to comply with the enablement requirement of 35 U.S.C. § 112, first paragraph;

(c) whether claims 1-5, and 15 are unpatentable under 35 U.S.C. §102(b) in view of Hartmann et al., *Blood*, 89; 6:2042-2047 (1997); and

(d) whether claims 1-6, 15, 19 and 22 are unpatentable under 35 U.S.C. §103(a) over Hartmann et al., *Leukemia and Lymphoma*, 31:385-392 (1998), in view of Hollinger et al., *PNAS*, 93:6444-6448 (1993).

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ARGUMENT

(a) Claim 22 is definite under 35 U.S.C. § 112, second paragraph

In the Examiner's Answer of July 10, 2007, the examiner has maintained that claim 22 is indefinite in the recitation of the phrase "a more intense lysis" because such is "a relative phrase which renders the claim indefinite." Appellants respectfully disagree.

All previous arguments against this rejection are hereby incorporated by reference, as if restated in their entirety herein.

Specifically, the examiner on page 9 of the Examiner's Answer states that "it is not clear how CD30 carrying cells can be *lysed more intensely*. Thus the metes and bounds of the phrase is [sic] unclear and ambiguous." (Emphasis in original.)

Claim 22, as appealed and set forth in the Appendix of the claims in the Appeal Brief filed March 23, 2007 recites:

> "22. The F_V antibody construct according to claim 1, wherein said F_V antibody is capable of inducing a more intense lysis of CD30 carrying cells *in vitro* than bimAbHRS-3/A9 (DSM ACC2142)."

Initially the Board's attention is respectfully drawn to the Hartmann et al., *Blood*, 89; 6:2042-2047 (1997) reference cited by the examiner, at page 2042, col. 1, 1st paragraph, where it is stated that "bispecific monoclonal antibodies...can bridge human effector cells to tumor cells..." In the second paragraph of col. 1, it is stated that "HRS-3/A9 can induce specific lysis of CD30+ tumor cells in vitro." Clearly, it is apparent from this reference cited by the examiner, that use of terms describing lysis induced by an antibody were common in the art at the time of filing of the invention.

Therefore, the language of claim 22, reciting an antibody that is capable of inducing a more intense lysis of CD30 than lysis induced by bimAbHRS-3/A9 was well within the understanding of one of skill in the art at the time of filing of the application. Thus, it would be clear to one of skill in the art that the more intense lysis of CD30 is induced by the antibody (though actually caused by effector cells).

With regard to appellants' argument presenting the results of Example 3 of the specification, the examiner has asserted on page 10 of the Examiner's Answer that Example 3, describing the JAM cytotoxicity test "has not taken into consideration that the F_V construct has no F_C region, thus the F_V construct is a smaller molecule that the bimAbHRS-3/A9." However, a close examination of the Example reveals that, when calculated on a molar basis, more bimAbHRS-3A9 (full length antibody) was used than diabody of the invention was used, allowing for precisely the comparison of the F_V construct to the bispecific antibody that is questioned by the examiner.

The results of Example 3 are illustrated in Figure 3 of the application, which is described on page 6 of the specification "an F_V construct according to the invention was used at a concentration of 1μg/ml. bimAbHRS-3/A9 was used at a concentration of 4 μg/ml as a control." (Emphasis added.) As the molecular weight of the F_V construct (the diabody of Example 2) is 59kD and the bimAbHRS-3/A9 antibody is 150kD, approximately 1.5 times more bimAbHRS-3/A9 than F_V construct was used in the Example, when calculated on a molar basis. Hence, the data of Example 3 shows that, calculated on a molar basis, a lesser amount of the F_V construct induces a more intense lysis than the monoclonal antibody of the art (bimAbHRS-3/A9). Therefore, contrary to

the examiner's assertion, the specification provides appropriate control to the claimed limitation of "inducing a more intense lysis of CD30 carrying cells *in vitro* than bimAbHRS-3/A9 (DSM ACC 2142)." Thus, those of skill in the art would understand what is recited in claim 22, in light of the claim language, the disclosure of the application and the terms as understood in the art.

Accordingly, claim 22 is clear and definite on its face and therefore particularly points out and distinctly claims the F_v antibody construct claimed therein. Accordingly, reversal of the final rejection of claim 22 under 35 U.S.C. § 112, second paragraph is warranted, and respectfully requested.

(b) Claim 22 is enabled under 35 U.S.C. § 112, first paragraph

In the Examiner's Answer, the examiner has reiterated that it is unclear if the deposit DSM ACC 2142 (i.e., of bimAbHRS-3/A9) is available to the public, as the U.S. Patent No. 5,643,759 which describes this antibody has expired for failure to pay maintenance fees.

The above-referenced deposit of bimAbHRS-3/A9 was made in accordance with the requirements of the Budapest Treaty on August 6, 1993.

All previous arguments against this rejection are hereby incorporated by reference, as if restated in their entirety herein.

In the response submitted January 24, 2007, appellants submitted copies of (1) the deposit certificate obtained when bimAbHRS-3/A9 was deposited with the DSMZ and (2) the declaration of availability regarding bimAbHRS-3/A9 made in U.S. Patent No.

5,643,759. The response submitted January 24, 2007 by appellants was not entered by the examiner. Accordingly, the bimAbHRS-3/A9 deposit certificate and declaration of availability have not been attached as evidence in this appeals process. However, the declaration of availability is available to the public on PAIR on the U.S. Patent and Trademark Office website at hypertext transfer protocol (http) web address: portal.uspto.gov/external/portal/!ut/p/_s.7_0_A/7_0_CH/.cmd/ad/.ar/sa.getBib/.ps/N/.c/6_0_69/.ce/7_0_3AB/.p/5_0_341/.d/1?selectedTab=ifwtab&isSubmitted=isSubmitted&dosnum=08327254 as the document titled "Rule 130, 131 or 132 Affidavits" submitted on July 8, 1996 in prosecution of U.S. Patent No. 5,643,759. It is respectfully requested that the Appeals Board take judicial notice of this document.

The Declaration of Availability made in U.S. Patent No. 5,643,759 states at paragraph 3 thereof that "upon allowance and issuance of the above-named application [08/327,254] as a United States Patent, all restriction on availability of the deposits designated in paragraph 1 hereinabove [including bimAbHRS-3/A9] will be irrevocably removed." U.S. Patent Application No. 08/327,254 issued as U.S. Patent No. 5,643,759 on July 1, 1997. Therefore, as of July 1, 1997, bimAbHRS-3/A9 was made freely accessible. Furthermore, the deposit of bimAbHRS-3/A9 will remain accessible, available, and obtainable at least until 2023, 30 years from the date of deposit pursuant to the Budapest Treaty.

The examiner argues that because U.S. Patent No. 5,643,759 has expired, there are no assurances that those entities in control of the claimed antibody would allow unlimited access to the antibody. It is noted that the pendency of a patent in the USPTO

and the accessibility of a deposit made with the DSMZ are not related once a patent has issued and the depositor irrevocably removed all restrictions on availability of the deposits. Accordingly, deposition with DSMZ under the Budapest Treaty and subsequent issue of U.S. Patent No. 5,643,759 ensured that the deposit DSM ACC 2142 would be accessible for thirty years from the date of deposit (August 6, 1993).

It is noted that accessibility of the deposit was available even before U.S. Patent No. 5,643,759 issued, as DSMZ, in accordance with Rule 11.3(a) of the Budapest Treaty[1] would have furnished a sample to anyone who presented a certificate of entitlement to access such sample from the United States Patent and Trademark Office (37 C.F.R. §

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[1] 11.3 Furnishing of Samples to Parties Legally Entitled

(a) Any international depositary authority shall furnish a sample of any deposited microorganism to any authority, natural person or legal entity (hereinafter referred to as "the certified party"), on the request of such party, provided that the request is made on a form whose contents are fixed by the Assembly and that on the said form the industrial property office certifies:

(i) that an application referring to the deposit of that microorganism has been filed with that office for the grant of a patent and that the subject matter of that application involves the said microorganism or the use thereof;

(ii) that, except where the second phrase of (iii) applies, publication for the purposes of patent procedure has been effected by that office;

(iii) *either* that the certified party has a right to a sample of the microorganism under the law governing patent procedure before that office and, where the said law makes the said right dependent on the fulfillment of certain conditions, that that office is satisfied that such conditions have actually been fulfilled *or* that the certified party has affixed his signature on a form before that office and that, as a consequence of the signature of the said form, the conditions for furnishing a sample to the certified party are deemed to be fulfilled in accordance with the law governing patent procedure before that office; where the certified party has the said right under the said law prior to publication for the purposes of patent procedure by the said office and such publication has not yet been effected, the certification shall expressly state so and shall indicate, by citing it in the customary manner, the applicable provision of the said law, including any court decision.

(b) In respect of patents granted and published by any industrial property office, such office may from time to time communicate to any international depositary authority lists of the accession numbers given by that authority to the deposits of the microorganisms referred to in the said patents. The international depositary authority shall, on the request of any authority, natural person or legal entity (hereinafter referred to as "the requesting party"), furnish to it a sample of any microorganism where the accession number has been so communicated. In respect of deposited microorganisms whose accession numbers have been so communicated, the said office shall not be required to provide the certification referred to in Rule 11.3*(a)*.

1.808(c); Form BP/13). It is not required that a patent be in force to obtain a sample of the deposit.

However, also pursuant to Rule 11.3(b) of the Budapest Treaty, once a patent is granted and published, the international depository authority will furnish a sample to anyone upon request, where the accession number has been communicated as referred to in a granted and published patent. No certification of entitlement to the deposit is required under Rule 11.3(b). Though U.S. Patent No. 5,643,759 is expired, it was granted and published and is available to the public. Correspondingly, upon such grant and publication, the sample of deposit DSM ACC 2142 deposited with DSMZ became accessible, available, and obtainable to any authority, natural person or legal entity upon request.

Furthermore, the term of a patent filed prior to June 8, 1995 is 17 years from date of filing or 20 years from date of issue, whichever is longer. The term of availability of a deposit made under the Budapest Treaty is 30 years from date of deposit. According to the examiner's reasoning, even if U.S. Patent No. 5,643,759 was presently still pending, upon expiration of the patent on October 21, 2014, the availability of the deposit would be uncertain until the end of its guaranteed availability period on August 6, 2023. This is simply not true. Once U.S. Patent No. 5,643,759 was granted, the restriction on availability was removed, irrevocably, and the sample was guaranteed to be available until 2023. The present status of U.S. Patent No. 5,643,759 is irrelevant. DSMZ is in control of the availability of the deposit, not the inventors, applicants, assignees, etc. of

U.S. Patent No. 5,643,759. Any such control was relinquished upon the July 1, 1997 issue of U.S. Patent No. 5,643,759.

As bimAbHRS-3/A9 is both known and readily available to the public until at least 2023, claim 22 is enabled under 35 U.S.C. § 112, first paragraph. Accordingly, reversal of the final rejection of claim 22 under 35 U.S.C. § 112, second paragraph is warranted, and respectfully requested.

(c) Claims 1-5, and 15 are patentable under 35 U.S.C. §102(b) in view of Hartmann et al., *Blood*, 89; 6:2042-2047 (1997).

In the Examiner's Answer mailed July 10, 2007, the examiner has maintained the rejection of claims 1-5 and 15 under 35 U.S.C. §102(b) in view of Hartmann et al., *Blood*, 89; 6:2042-2047 (1997) (hereinafter "Hartmann et al. 1997"), stating that stated that appellants' arguments are not persuasive to overcome the rejection. Appellants maintain, as set forth in the Appeal Brief filed March 23, 2007, that the Hartmann et al. 1997 reference does not describe all elements of the claimed invention.

All previous arguments against this rejection are hereby incorporated by reference, as if restated in their entirety herein.

Anticipation of a claim requires the disclosure in a single prior art reference of each element of the claim under consideration. (In re Spada, 15 USPQ2d 1655 (Fed. Cir., 1990), In re Bond, 15 USPQ2d 1566 (Fed. Cir., 1990). Appellants assert that Hartmann et al. does not describe all elements of claim 1. Claim 1, as appealed recites:

> "1. A F_v antibody construct having variable domains for CD16 and a CD30 but no constant domains and inducing a regression of Hodgkin's disease *in vivo*."

The examiner maintains that claims 1-5 and 15 are anticipated by Hartmann et al. 1997, as that reference describes treatment with a bimAbHRS-3/A9 antibody. Hartmann et al. on page 2046 refer to F_v constructs (as described by the cited Holliger et al. reference) and advance the hypotheses that side effects such as HAMAs may be resolved by diabodies. The examiner's position is that one of skill in the art would immediately envisage F_v constructs having variable CD30 and CD16 domains form this generic reference to Holliger et al. Appellants disagree. Hartmann et al. 1997 do not teach "inducing a regression of Hodgkin's disease *in vivo*."

F_v constructs are structurally distinct chemical compounds from the full-length antibody bimAbHRS-3/A9 (i.e., embodying constant and variable regions) described in Hartmann et al. 1997. The therapeutic properties of Hartmann et al. 1997's full-length bimAbHRS-3/A9 cannot be directly transferred to F_v constructs as described by Holliger et al. (and referenced in the Hartmann et al. 1997 reference). Holliger et al. gave no indication that F_v constructs could induce effector cells to kill tumor cells. Moreover, Holliger et al. teach on page 6448 that

> "[t]he structure of diabodies is compact and with short linkers should be rigid...[t]he lack of flexibility is unlikely to compromise the cross-linking of two soluble antigens or of a cell-surface antigen and a soluble antigen. However, for cross-linking of two cells, some flexibility of the surface antigens may be required."

Thus, Holliger et al. doubt that their reported F_v construct is capable of cross-linking cells, such as tumor cells with cytotoxic cells, due to steric hindrance caused by the fixed

orientation of the cell-surface antigens and the rigid inflexible structure of their antibodies. This clearly demonstrates that the structural distinction between a F_v construct of Holliger et al. and the full-length antibody bimAbHRS-3/A9 of Hartmenn et al. 1997 lead to different therapeutic effects. Therefore, contrary to the examiner's contention, a skilled person clearly would not "at once envisage" F_v constructs having variable CD30 and CD16 domains which induce a regression of Hodgkin's disease *in vivo* from the disclosure of Hartmann et al. 1997.

Furthermore, the examiner has rejected dependent claim 5, reciting the deposited vector, by assuming that the F_v antibody encoded by this vector is the same product as indicated by Hartmann et al. 1997. This is not correct. Hartmann et al. 1997 cannot indicate the F_v construct being expressed by the expression vector pKID16-30, because Hollinger et al., cited by Hartmann et al. 1997 do not disclose an F_v construct having a peptide linker of nine amino acids, such as that of claim 5. Specifically, the linker of the construct of claim 5 is AKTTPKLGG, as shown at amino acids residues 121-129 and 126-134 of the pKID16-30 vector shown in Fig. 1 of the application. In general, the pKID expression vector is described in Kipriyanov et al., *Int. J. Cancer,* 77, 763-772 (1998), where the linker sequence in the vector is shown in Fig. 1 of that reference. Hartmann et al. 1997 does not describe a construct with such a nine amino acid linker.

As set forth above, Hartmann et al. 1997 does not anticipate the claimed invention. Claims 2-5 and 15 are dependent from claim 1 and therefore inherently include all the limitations of claim 1 pursuant to 35 U.S.C. § 112. As claim 1 is not anticipated by Hartmann et al. 1997, claims 2-5 and 15 are also not anticipated by

Hartmann et al. 1997. Accordingly, reversal of the final rejection of claims 1-5 and 15 under 35 U.S.C. § 102(b) as being anticipated by Hartmann et al. 1997 is warranted, and respectfully requested.

(d) Claims 1-6, 15, 19 and 22 are patentable under 35 U.S.C. §103(a) over Hartmann et al., *Leukemia and Lymphoma*, 31:385-392 (1998), in view of Hollinger et al., *PNAS*, 93:6444-6448 (1993).

In the Examiner's Answer mailed July 10, 2007, the examiner has maintained the rejection of claims 1-6, 15, 19 and 22 under 35 U.S.C. § 103(a) as obvious over Hartmann et al., *Leukemia and Lymphoma*, 31:385-392 (1998) (hereinafter "Hartmann et al. 1998") in view of Holliger et al., *PNAS*, 93:6444-6448 (1993) (hereinafter "Hollinger et al."). The examiner has stated that appellants' arguments presented in the Appeal Brief filed March 23, 2007 are not persuasive.

All previous arguments against this rejection are hereby incorporated by reference, as if restated in their entirety herein.

As previously stated, in order for an invention to be obvious, the difference between the subject matter of the application and the prior art must be such that the subject matter as a whole would have been obvious at the time the invention was made to a person of ordinary skill in the art. (MPEP §2143.)

The examiner has found appellants' previous arguments to be non-persuasive, alleging that "Hartmann et al. teach that anti-CD16/CD30 bispecific antibody HRS-3/A9 binds with one arm to CD30 ...and with its second arm binds CD16 on NK cells leading to specific tumor killing." And that "Holliger et al. further teach that the binding affinity

of the bivalent and bispecific diabodies have improved affinity to its antigens..." (Examiner's Answer, p. 6.)

However, it is submitted that Holliger actually discourages such combination proposed by the examiner, directing one of skill away from the claimed subject matter, as may be seen on page 6448, lines 4-9, where it is stated:

> "...[t]he lack of flexibility is unlikely to compromise the cross-linking of two soluble antigens or of a cell-surface antigen and a soluble antigen. However, for cross-linking of two cells, **some flexibility of the surface antigens may be required**."

Because cell-surface antigens have fixed orientations and, as Holliger et al. pointed out, their F_v construct has a **rigid, inflexible**, structure, Holliger et al. do not provide a reasonable expectation of success and would direct one of skill in the art away from using this F_v construct for cross-linking tumor cells with cytotoxic cells as required by the present invention. It was therefore very surprising to the present inventors to obtain high *in vitro* and *in vivo* activities with the F_v construct according to the invention, especially since the bimAbHRS-3/A9 of the prior art **has flexible arms**.

Regarding claim 22, the examiner asserts that because Holliger et al. describe that the binding of F_v constructs have improved affinity to its antigens, a skilled person would at once envisage that the F_v construct having variable domains for CD16 and CD30 would induce more intense lysis of CD30 carrying cells than the bimAbHRS-3/A9. Again, it is reiterated that Holliger et al. gave no indication that F_v constructs could induce effector cells to kill tumor cells. The examiner's argument that this was to be expected due to higher affinities is not supported by the data. Among the three F_v constructs disclosed by

Holliger et al. only the construct with no linker had higher affinity (page 6447, 1st col., Table 2). The constructs with 5 and 15 amino acid linkers had an affinity similar to that of the parental F_v molecule. It is now known, however, that F_v constructs with zero residue linkers (i.e., no linker) tend to form trimers with three active antigen binding sites, rather than dimers, as assumed by Holliger et al.[2] Accordingly, these trimers would be expected to have higher affinity, as evidenced in Table 2 of Holliger et al. Therefore Table 2 of Holliger et al. does not disclose any dimers with higher affinity.

Further, if the degree of cytotoxic activity of the F_v construct is functionally related to its binding affinity, as the examiner asserts, the results of Holliger et al. that F_v constructs with 5 or 15 amino acid linkers have binding affinities similar to the parent F_v would indicate that F_v constructs with 5 or 15 amino acid linkers also have cytotoxic activity similar to the parent F_v construct. Therefore, it was very surprising to the inventors of the present invention that a F_v construct having a 9 amino acid linker (as in a working example of the present application) is capable of producing a more intense lysis of CD30 carrying cells *in vitro* than the parent bimAbHRS-3/A9 antibody. Furthermore, the bimAbHRS-3/A9 is also able to bind to F_c receptors on additional effector cells with its F_c domain (as noted by the examiner on page 7 of the Examiner's Answer) and would therefore be expected to induce the activation of more NK cells than the claimed F_v construct, which lacks a F_c domain.

[2] *See* Kortt et al., *Prot. Engin.*, vol. 10, no. 4, p. 423-433 (1997).

Therefore, it was surprising and unexpected to the present inventors to obtain higher *in vitro* activities with an F_v construct than with the full-length monoclonal antibody bimAbHRS-3/A9.

Hartmann et al. 1998 in view of Hollinger et al. fail to provide any derivative basis for the claimed invention and, additionally, there would have been no logical reason for one of skill in the art to combine such references. Accordingly, no basis of *prima facie* obviousness of the claimed invention is presented by such cited references. As Hartmann et al. 1998 in view of Hollinger et al. do not provide any logical basis for the F_v antibody construct recited in claims 1-6, 15, 19 and 22, Hartmann et al. 1998 in view of Hollinger et al. do not render the claimed invention obvious. Accordingly, reversal of the rejection of claims 1-6, 15, 19 and 22 under 35 U.S.C. § 103 (a) as being obvious over Hartmann et al. 1998 in view of Hollinger et al. is warranted, and respectfully requested.

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CONCLUSION

For the reasons presented above and in Applicants' Appeal Brief, the rejections of claim 22 under 35 U.S.C. § 112, second paragraph, of claim 22 under 35 U.S.C. § 112, first paragraph, of claims 1-5 and 15 under 35 U.S.C. §102(b), and of claims 1-6, 15, 19 and 22 under 35 U.S.C. §103(a) should be reversed.

Respectfully submitted,

Date: September 10, 2007

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